



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/676,478

09/30/2003

Ali-Reza Adl-Tabatabai

42P17411

7528

45209

7590

09/11/2008

INTEL/BSTZ

BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP

1279 OAKMEAD PARKWAY

SUNNYVALE, CA 94085-4040

EXAMINER

KROFCHECK, MICHAEL C

ART UNIT

PAPER NUMBER

2186

MAIL DATE

DELIVERY MODE

09/11/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Advisory Action

1. The proposed after-final amendment filed on 8/28/2008 has been entered as there were no changes to the claims.
2. The claims stand rejected as explained in the final rejection mailed on 7/23/2008.

Response to Arguments

3. Applicant's arguments filed 8/28/2008 have been fully considered but they are not persuasive.
4. Applicant argues with respect to independent claims 1, 15, 24, and 31 that the combination of Shimoi, Corcoran, Kim, and Kever, specifically Kever does not teach of determining that a cache line retrieved from a main memory device is to be combined with a resident companion cache line. The examiner disagrees.

Paragraph 21 of Kever teaches that when a compression ratio is less than or equal to .5, "the compressed line of data is written into one half of a data storage line. The other half of the half-filled data storage line is available for another compressed line of data. This other compressed line that can be stored with its "companion" line forming a complete compressed cache line. The applicant's specification indicates in paragraphs 31 and 32 that companion lines, "are two lines with addresses that differ only in the companion bit...any bit can be selected to be the companion bit." Figure 2 of Kever, and paragraphs 22-25 disclose a data line (226), containing xxx, with a tag reference (246) of 1 and an adjacent line, containing yyy, with a tag reference of 2.

Art Unit: 2186

These lines are within the same group and can be identified within that group by their tag reference. Thus their tag reference value is the only bit that differs. In view of how the applicant describes a companion line in the specification, these two lines must be companion lines. Further in figure 2, these two lines are shown compressed into a single data line in the cache data array (218), thus it is clear to one of ordinary skill in the art that the first data line (tag reference 1) was compressed into a half-storage line and the second data line (tag reference 2) was compressed into the other half storage line of that cache data array. The inclusion of the Kim reference teaches that the data lines come from main memory (column 1, lines 55-67, column 3, lines 41-54).

5. Applicant also argues that the combination does not teach of the above determining, “if the companion cache line is resident in the cache memory.” The examiner disagrees.

Kever, figure 2 and paragraphs 21-25 suggest exactly that. Paragraphs 21 and 24 teach of a data line being compressed and located within the cache memory in half of a data storage line’s space (the companion cache line in the applicant’s claims). Paragraph 21 goes on to explain that, “the other half of the half-filled data storage line is available for another compressed line of data.” In other words, looking to figure 2, data line xxx is compressed and put into the cache memory data array 218, and then data line yyy is compressed and combined with its companion line xxx in the cache memory data array. xxx is clearly already resident in the cache memory when yyy is compressed and combined with it in the same data storage line.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Krofcheck whose telephone number is 571-272-8193. The examiner can normally be reached on Monday - Friday.

7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael C. Krofcheck

/MICHAEL C KROFCHECK/
Examiner, Art Unit 2186

/Matt Kim/
Supervisory Patent Examiner, Art Unit 2186